

Jobs for **RENEW**



BY LAURENCE SHATKIN

As America emerges from recession, certain industries are expected to grow particularly fast and will present many job opportunities for both young people and career changers. This article looks at these high-opportunity industries and the kinds of jobs they are expected to open up. In the global economy of the 21st century, many low-skill jobs can be done either by computers or by workers in low-wage countries. The American industries that remain competitive will be those that focus on what we do better than most other countries: creativity and innovation. But these don't happen by accident. They rest on three pillars: a highly educated workforce, a healthy workforce, and an

outstanding infrastructure. All three of these pillars have been threatened over the last few decades, but the government has targeted them all for renewal, and each is associated with industries that will provide many jobs in the coming decade.

Education

Education employed about 13.5 million workers in 2008, and the Bureau of Labor Statistics projects that the workforce will grow by 12 percent from 2008 to 2018. Some job opportunities for teachers, teacher aides, and educational administrators will result from a growing population of students at the elementary and middle school levels. The trend toward inclusion of disabled and ESL students

will increase the demand for special education teachers. Postsecondary and adult educators will also be in high demand, partly because the new economy requires workers with higher skills, and partly because adults will be taking more classes for self-enrichment.

In addition to these areas of growth, many existing positions will need to be filled as they are vacated by retiring baby boomers, especially librarians, educational administrators, and postsecondary teachers. The main force holding back expansion of education right now is budget constraints. Education received extra funding as part of the stimulus package, but it remains to be seen whether the federal government will break its

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habit of underfunding the educational improvements it mandates. State and local funding will certainly improve as the economy recovers, but their levels were inadequate in many states even before the recession. One factor limiting job opportunities for postsecondary and adult education is the expanded use of adjunct faculty. Full-time and tenured positions will not dominate as they did in the past. Nevertheless, on balance, the outlook for the education sector is very good.

Health Care

Opportunities for jobs in health care were excellent even before the 2010 reform bill was passed, largely because of the graying

of the American population, and the outlook is even better now that health insurance coverage will expand. The reform bill does not adequately address the problem of rising health care costs, but this actually works to the advantage of people who want to enter this field with less than a four-year college degree because it helps drive two major trends: the shift from inpatient to outpatient and home care, and the expanded use of lower-paid providers. These trends mean there will be many job openings for middle-skill workers such as dental hygienists and practical nurses, as well as for low-skill workers such as home health aides and physical therapist aides. Health care is one of the few industries

where low-skill workers are not threatened because most of the work cannot readily be done by computers or offshore workers. The industry employed about 14.3 million workers in 2008 and is projected to grow by 22 percent from 2008 to 2018.

Infrastructure

The third pillar of the innovative economy, infrastructure, is not an industry but supports many jobs, especially in construction. Like education, it gets much lip service but rarely gets funded adequately. However, the infrastructure did receive an infusion of funds from the stimulus package and will get additional funding from a National Infrastructure Bank.

High-speed rail transportation and a smart power grid are high priorities. Many workers will be needed to meet the increasing demand for road construction and repair. Although construction draws on workers from all skill levels and, like health care work, offers low-skill work that can't be offshored, the best job opportunities are expected to be in higher-skill jobs: skilled and experienced construction trades workers, engineers and managers. Construction projects are becoming increasingly complex, requiring better-trained managers than in the past.

The construction industry employed about 7.2 million workers in 2008 and is projected to grow by 19 percent from 2008 to 2018. Obviously, these workers will not be employed only on infrastructure projects, but home-building projects are expected to lag for many years as the real estate market remains stagnant; remodeling of homes and industrial plants will be more important than it has been in the past.

High-Tech Industry, Computer and Telecommunications Technologies

America's high-tech industry, computer and telecommunications technologies, did not come through the recession unscathed. However, it has been among the quickest industries to regain growth because it is based on two of our country's greatest assets: creativity and an open culture that encourages it. Availability of venture capital has also been a great stimulus to this industry. Growth of the Internet, especially mobile applications and cloud computing, will create many jobs in software publishing. Opportunities are expected to be excellent for computer specialists, particularly in security. At the other end of the skills spectrum, there will be job openings for installers and repairers caused by retirements, and for customer service representatives caused by growth and turnover.

Another growth area of this industry will be driven by an important upgrade

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to the infrastructure: the smart grid. The United States is committed to developing and fielding the technologies that will allow the electric power grid to respond instantly to outages and attacks, to smoothly handle inputs from decentralized or fluctuating sources such as wind turbines, and to communicate with smart appliances so consumers can use power when it is cheapest. An executive from Cisco recently predicted that the market for these technologies will be bigger than that from the Internet, and this will mean creation of many jobs, especially for technicians and engineers. Information and telecommunications technologies employed about 2.9 million workers in 2008, and the industry is projected to grow by a hefty 26 percent from 2008 to 2018.

Going Green

The future of green technologies is more difficult to foresee. Over the next decade, the outlook for this industry will depend largely on political will rather than on market forces, and a political consensus may be slow in coming. The outplacement consulting firm Challenger, Gray & Christmas has estimated 1.3 million green job openings between 2008 and

2030, but other estimates vary widely, partly because of uncertainty about future government policy and partly because of a lack of agreement about what constitutes a green job.

Despite these uncertainties, some trends toward green technologies are already in motion. For example, many scientists, engineers and technicians are already working in research and development of advanced clean-energy technologies. Solar panel installers and wind turbine technicians are in demand, especially in states that are encouraging these power sources. These jobs will continue to grow, as well as many low-skill jobs in insulating, weatherizing and recycling.

China seems likely to capture most of the jobs involved in the manufacturing of solar photovoltaic (PV) panels, but this is not as dire an outcome as it might seem; almost two-thirds of solar PV-related jobs are for assembling modules, connecting systems, and contracting, so expansion of solar PV usage will create a large number of American jobs regardless of where the panels are made. Many of the components of wind turbine installations are so massive that they cannot be shipped economically from overseas manufacturers.

Advanced Manufacturing

As an industry, manufacturing employed about 12 million workers in 2008, and the numbers continue to diminish. Growth from 2008 to 2018 is projected to be only 3 percent. Nevertheless, innovative companies in this industry are expected to create many jobs for workers with the right skills. The term advanced manufacturing is often used to refer to the techniques that enable American firms to outpace the offshore competition. These manufacturers use the most up-to-date technologies, from product design through to production and distribution. They often combine information technology with mechanical technology to create robotic equipment or highly precise apparatus, such as computer numerical controlled (CNC)

machine tools. Nanotechnology, geospatial technology and biotechnology are also being exploited for new products and new production techniques. Another key ingredient in advanced manufacturing is input from workers, often organized into teams, whose suggestions can contribute to the efficiency of the operation (including ways to make it more “green”) and the quality of products.

Workers in advanced manufacturing thus must be highly skilled, so if anything holds back advanced manufacturing, it could be a shortage of appropriately skilled workers. Already in 2005, a survey by the National Association of Manufacturers reported that 81 percent of respondents were experiencing trouble finding qualified workers; 13 percent reported severe shortages. Some of this labor shortage can be blamed on the failures of American schools, but some may also be caused by the career choices of talented students who train for other industries. Manufacturing suffers from the perception that it is a career path for low-skilled workers, although the trend is actually in the opposite direction.

Jobs Available for Workers With the Right Skills

The need for a high level of skills is the common thread that runs through all of these high-opportunity industries, and that is where community and technical colleges come in. Not all workers will need a four-year college degree, but all will need college-level learning, plus the ability to continue learning throughout their working lives. **T**

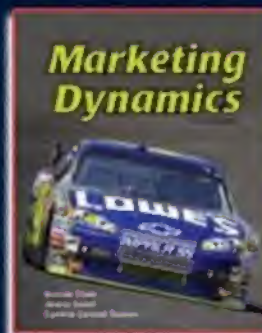
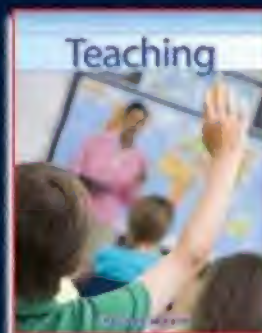
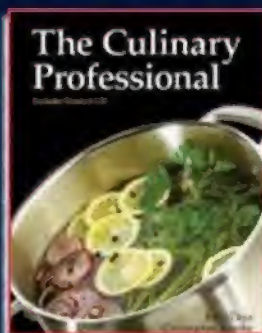
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